Functional limitations associated with mental disorders

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Chapter 4

Comorbidity of physical and mental disorders and the effect on work loss days

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4.1 Abstract

Objective- To examine the association between physical and mental disorders and the separate and joint effect of physical and mental disorders on work-loss.

Method- Data were derived from the Netherlands Mental Health Survey and Incidence Study. This was a general population study in which 7076 adults, aged between 18 and 64 years, were assessed using the Composite International Diagnostic Interview. Medically treated physical disorders and work-loss were assessed using self-reports.

Results- All physical disorders, except injury caused by accident, were significantly related to anxiety and mood disorders, but only weakly related to substance use disorders. Both physical and mental disorders were significantly related to work-loss; mental disorders more so than physical disorders. Physical-mental comorbidity leads to a mainly additive increase in work-loss.

Conclusion- Physical-mental comorbidity is common in the general population and leads to a greater absenteeism from work than pure disorders.

4.2 Introduction

Research carried out in general population samples (Neeleman et al., 2001), primary care samples (Berardi et al., 1999) and clinical studies (Sullivan et al., 2001) have documented that physical-mental comorbidity (PM-comorbidity) is common. While physical (Hays et al., 1995; Sprangers et al., 2000; Stewart et al., 1989) and mental disorders (Bijl and Ravelli, 2000; Broadhead et al., 1990; Lyons et al., 1994; Ormel et al., 1994; Ormel et al., 1998) each have damaging effects, it is assumed that PM-comorbidity is even more disabling with regard to functioning (Sullivan et al., 2001; Wilson and Drury, 1984). Not only are these outcomes of primary concern to the patients, their families and clinicians, they are also of interest to policymakers because of societal costs due to the increased use of health services and an increased number of work-loss days (Kessler et al., 2001). It is assumed that both physical and mental disorders are related to work-loss (Kessler and Frank, 1997; Wells et al., 1989b), and that PM-comorbidity may greatly increase the number of working days lost.

The number of work-loss days associated with PM-comorbidity could be the sum (additive effect), greater than the sum (synergistic effect) or less than the sum (antagonistic effect) of the number of work-loss days associated with physical and mental disorders. Wells et al. (Wells et al., 1989b) found additive associations for some physical disorders associated with depression. Kessler et

al. (Kessler et al., 2003b) found an additive effect for some physical conditions but for others they found a synergistic effect with any mental disorder.

Kessler et al. are, to our knowledge, the first group to have studied multiple physical and mental disorders in one study (Kessler et al., 2003b). Other researchers have related any mental disorder to any physical disorder (e.g. Dewa and Lin, 2000). Some selected one specific mental disorder, usually depression, and related that to any physical disorder (e.g. Katon and Ciechanowski, 2002) or to several specific physical disorders (e.g. Patten, 2001; Roose et al., 2001). The available studies indicate that certain chronic physical disorders are associated with certain mental disorders, whereas others clearly are not. For example, asthma has been found to co-occur with panic disorders (Carr, 1997; Yellowless et al., 1987), and depression has been found to co-occur with chronic back trouble, sinus infection and migraine headaches (Patten, 2001). No significant associations were found between, for instance, substance abuse disorders, migraine headaches (Swartz et al., 2000), alcohol abuse, and chronic low back pain (Wells et al., 1989a). Some specific PM-comorbidities have, to our knowledge, never been studied. Concurrent physical and mental disorders may be attributable to biological, psychological or social consequences of the primary disorder, either directly or indirectly increasing the risk of the other disorder. In addition, physical and mental disorders may occur simultaneously due to common risk factors.

Many PM-comorbidities have not been previously investigated, therefore the effect of PM-comorbidity on work-loss days is still largely unknown. This limitation in previous studies might lead to the neglect of mental comorbidity in the physically ill and therefore increase avoidable personal suffering and societal costs.

4.3 Aims of the study

Using a large, nationally representative sample of Dutch adults, we wanted to assess the comorbidity between specific common physical and mental disorders. The second aim was to investigate the separate and joint effects of physical and mental disorders on work-loss. Based on previous research, we hypothesized that: (1) PM-comorbidity is common. (2) Purely physical and mental disorders both lead to work-loss. (3), PM-comorbidity leads to a further increase in work-loss and (4) this effect may be either additive or synergistic.

4.4 Materials and methods

4.4.1 Sampling and procedure

Data was derived from the Netherlands Mental Health Survey and Incidence Study (NEMESIS). Methods are described elsewhere (Bijl et al., 1998b). Briefly, NEMESIS is a prospective psychiatric epidemiological survey in the Dutch adult general population (age 18-64) conducted in three waves (1996, 1997, and 1999). Results presented here were obtained from the first wave. NEMESIS is based on a multistage, stratified, random sampling procedure in which one respondent was randomly chosen in each selected household. The participants in the survey were representative of the Dutch population in gender, civil status, and urbanization. Only the 18 to 24 age group was underrepresented. In the initial data collection phase, from February to December of 1996, 7076 persons were interviewed, with a response rate of 69.7%. These procedures were approved by the ethics committee of the Netherlands Institute of Mental Health and Addiction and informed consent was obtained in accordance with the Dutch law prevailing in 1996.

4.4.2 Physical disorders

NEMESIS includes a checklist of 31 common physical disorders. Respondents were asked whether they had experienced any of the physical disorders in the past 12 months. If a participant answered 'yes', he was subsequently asked whether he was treated for the condition by a health care professional or whether medication had been prescribed. Only treated or medicated physical disorders with a prevalence of 3.5% or higher were included in the analyses presented here. These disorders are: sinus infection (9.7%), chronic back trouble (8.9%), rheumatism (8.3%), hypertension (7.9%), asthma (5.6%), migraine headaches (4.8%), diseases of the digestive system (3.6%) and injury caused by accident (3.5%).

4.4.3 Mental disorders

The fully structured Composite International Diagnostic Interview (CIDI), version 1.1, computerized version, was used to determine which individuals met DSM-III-R criteria for any mental disorder in the 12 months preceding the interview (Robins et al., 1988; WHO, 1990). The WHO field trials have documented acceptable inter-rater reliability (Wittchen et al., 1991; Wittchen, 1994), acceptable test-retest reliability (Semler and von Cranach, 1987) and high validity for all diagnoses with the exception of acute psychotic presentations

(Farmer et al., 1991; Wittchen, 1994), but this diagnosis is not included in the analyses presented here.

The following DSM-III-R diagnoses were included in this study: anxiety disorder, mood disorder and substance use disorder. Eating disorder, schizophrenia and other non-affective psychotic disorders were not analyzed because the prevalence was too low. The analyses were also repeated for specific mental disorders such as major depression and panic disorder. Results are not presented here, but available upon request.

4.4.4 Work-loss days

The number of 12-month work-loss days was assessed with two questions. In the first question, the respondent was asked 'How many days in the past twelve months were you unable to work due to mental health problems or substance use disorders?' These days were added to the number of days in the second question: 'How many days in the past twelve months were you unable to work due to physical health problems?', In the Netherlands, people in a full-time job work on average 203 days a year, therefore, the highest number of total work-loss days was set at 203 in order to calculate the excess impairment days.

4.4.5 Statistical analyses

Data analysis was conducted in five steps. First, the prevalence of mental disorders was estimated among those with common physical disorders (Table 4.1). Second, bivariate odds-ratios (OR) were computed between each of the physical and mental disorders in a 12-month period. The OR measures what might be considered the equality of opportunity, and if it deviates from one there is inequality. An OR greater than one indicates that there is an increased risk of a mental disorder among persons with a physical disorder, compared to those without a physical disorder (Table 4.2). Third, linear regression was used to estimate the separate effects of physical and mental disorders on the number of 12-month work-loss days in the total sample (Table 4.3). In cross-sectional data such as these, the regression coefficient for the predictor is the difference in response per unit difference in the predictor. Since the predictor is dichotomous, namely physical disorder or no physical disorder, the regression coefficient is the difference in response between respondents with a physical disorder compared to those without one. Furthermore, the unstandardized coefficients (regression coefficient for raw data) can be interpreted using the scale of measurement for the raw data, which is the number of work-loss days in this article. The unstandardized multiple regression coefficient, thus, indicates the Excess Impairment Days associated with a particular disorder, because we used the dependent variable of work-loss days and all independent disorder variables are binary variables. This interpretation of unstandardized regression coefficients is

comparable to the one used by Ormel et al. (1998). Fourth, linear regression was used to estimate the effects of a mental disorder in predicting 12-month work-loss days among respondents with each of the physical disorders. The unstandardized regression coefficient can be interpreted as the excess number of work-loss days among respondents with a mental disorder compared to respondents with the same physical disorder, age, sex and education but without the mental disorder (Table 4.4). Finally, the linear regression analysis in the third step was replicated in a way that distinguished between physical disorders with and without at least one mental disorder, and mental disorder without physical disorder (Table 4.5). All analyses were carried out using the SPSS version 11.0.1 software package and were controlled for sex, age and educational attainment.

4.5 Results

4.5.1 Are there comorbidities between specific physical and mental disorders?

Table 4.1 presents the prevalence of physical disorders in the general population and the prevalence of mental disorders in those with a physical disorder. Regardless of the kind of physical disorder, the prevalence of mental disorders is higher in those with a physical disorder when compared to those without any physical disorder.

Table 4.1. Prevalence of physical disorders among first wave NEMESIS respondents (n=7076) and the prevalence of DSM-III-R mental disorders among respondents with the specific physical disorder.

	Physical disorders		Mental disorder (%) among the specific physical disorders
	N	Percent	
No physical disorders	4070	57.5	19.7
Sinus infection	689	9.7	29.6
Chronic back trouble	631	8.9	29.2
Rheumatism, inflammation of joints	587	8.3	28.1
Hypertension	556	7.9	26.6
Asthma	397	5.6	30.7
Migraine	339	4.8	35.1
Disease of the digestive system	257	3.6	34.6
Injury cause by accident	249	3.5	26.9

Table 4.2 presents the odds ratios describing the extent of comorbidity between physical and mental disorders, controlled for sex, age, and educational attainment. In general, having a physical disorder increased the risk of having a mental disorder and vice versa. All physical disorders, except injury caused by accident, are positively and significantly related to anxiety disorder and also mood disorder. In contrast, substance use disorder was only significantly related to rheumatism, asthma and diseases of the digestive system. Disease of the digestive system was the physical disorder most strongly related to mental disorders, and injury caused by accident the least strongly related. Mental disorders show a clear hierarchy, with mood disorder most strongly associated with physical disorders, followed by anxiety disorder and then substance use disorder.

Table 4.2. The associations (odds ratios) of physical disorders and DSM-III-R mental disorders †

	Anxiety disorder	Mood disorder	Substance use disorder
	OR [95% CI]	OR [95% CI]	OR [95% CI]
Sinus infection	1.5[1.2-1.9]***	1.5[1.2-2.0] ***	0.8[0.5-1.1] ns
Back trouble	1.6[1.3-2.0]***	1.7[1.3-2.2] ***	1.3[0.9-1.8] ns
Rheumatism	1.4[1.1-1.8] **	1.5[1.1-2.0] **	1.8[1.3-2.6] ***
Hypertension	1.7[1.3-2.1] ***	1.6[1.2-2.2] ***	1.1[0.7-1.7] ns
Asthma	1.5[1.1-2.0] **	1.5[1.1-2.0] *	1.9[1.3-2.7] ***
Migraine	2.1[1.6-2.7] ***	2.4[1.8-3.2] ***	0.6[0.3-1.2] ns
Digestive system	2.1[1.5-2.8] ***	2.6[1.8-3.6] ***	1.8[1.1-2.8] *
Accidental injury	0.9[0.6-1.4] ns	1.3[0.8-2.0] ns	1.4[0.9-2.2] ns

* p<.05; ** p<.01; *** p<.001; ns: not significant; †OR, odds ratios of the DSM-III-R disorders in predicting the physical disorders, controlling for age, sex, and educational attainment; (95% CI) = 95% confidence interval.

4.5.2 What are the separate effects of physical and mental disorders on one-year work-loss days?

Table 4.3 shows the Excess Impairment Days (EID) associated with each cluster of physical and mental disorders, controlled for sex, age, and educational level. For example, the EID for a sinus infection is 4.9, which means that people with a sinus infection were on average 4.9 days more absent from work than people of the same sex, age, and educational level who did not have a sinus infection in the past year. This table shows that all physical and mental disorders were significantly associated with EID. Although statistically significant, the extent of EID varied. Sinus infection (4.9) and asthma (4.9) are physical disorders associated with the least number of excess impairment days and chronic back trouble (25.1) with the most. This correlates with the finding that sinus infection (2.2%) and asthma are associated with the lowest percentage of people totally

unable to work (2.5%) and chronic back trouble (8.4%) and rheumatism (7.8%) with the highest.

Mood disorder was the mental disorder associated with the most EID (28.9), followed by anxiety disorder (17.6) and substance use disorder (7.6). This also correlates with the finding that mood disorder is associated with the highest percentage of respondents totally unable to work (8.4%) and substance use disorder with the lowest (3.9%). Overall, the impact of the most disabling physical and mental disorder is comparable in terms of both EID and total work disability. The least disabling physical disorder is less disabling than the least disabling mental disorder.

Table 4.3. Excess impairment days associated with common physical and mental disorders and the percentage of people totally unable to work.†

	Prevalence‡	EID [s.e] †	Respondents totally unable to work (%) #
No physical disorders	57.5%		0.6
Physical disorders			
Sinus infection	9.7%	4.9 [1.4] ***	2.2
Chronic back trouble	8.9%	25.1 [1.5] ***	8.4
Rheumatism	8.3%	18.5 [1.5] ***	7.8
Hypertension	7.9%	9.0 [1.6] ***	4.9
Asthma	5.6%	6.1 [1.8] ***	2.5
Migraine	4.8%	11.1 [2.0] ***	3.2
Digestive system	3.6%	17.7 [2.2] ***	6.2
Accidental injury	3.5%	17.9 [2.3] ***	4.4
Mental disorders			
Anxiety disorders	12.9%	17.6 [1.3] ***	5.9
Mood disorders	8.1%	28.9 [1.5] ***	8.4
Substance use disorders	7.5%	7.6 [1.6] ***	3.9

* p<.05, ** p<.01, *** p<.001; † Based on multiple regression of number of work-loss days on the different physical and mental disorders, controlling for sex, age, and educational attainment. EID; unstandardized linear regression coefficients; [s.e.] = standard error of the mean; ‡ Percent prevalence of physical and mental disorders in the total sample (n=7076); # Percent prevalence of people totally unable to work within specific physical and mental disorders. In the Netherlands, a person in a full-time job works on average 203 days a year. Respondents who reported 203 work-loss days or more in one year were considered totally unable to work.

4.5.3 What are the joint effects of physical and mental disorders on one-year work-loss days?

Table 4.4 shows the EID associated with mental disorders among respondents with a physical disorder. An EID of 9.8 due to comorbid anxiety disorder in those patients with a sinus infection means that people with this specific comorbidity were on average 9.8 days more absent from work than people of the same sex, age, and educational level with a sinus infection but without an anxiety disorder. The presence of a comorbid mental disorder generally increased the absence from work. The presence of hypertension or migraine together with a mental disorder is associated with the greatest increase in work-loss days. The presence of a mental disorder in combination with an injury caused by an accident does not lead to a significant additional increase in work-loss days.

Anxiety disorders and mood disorders are associated with an increase work-loss days if they co-occur with a physical disorder, with the exception of anxiety, comorbid with a disease of the digestive system. A substance use disorder was not generally associated with an increase work-loss days in the presence of a physical disorder, except when comorbid with a sinus infection and hypertension.

Table 4.4. Excess Impairment days associated with comorbid DSM-III-R mental disorders among respondents with physical disorders†

	EID [s.e] †		
	Anxiety disorder	Mood disorder	Substance use disorder
Sinus infection	9.8 [3.6] **	19.5 [4.2] ***	26.7 [6.3] ***
Back trouble	23.8 [6.3] ***	39.7 [7.4] ***	5.4 [10.0] ns
Rheumatism	18.7 [6.3] **	30.5 [7.5] ***	7.4 [9.6] ns
Hypertension	18.6 [5.4] ***	41.4 [6.4] ***	23.5 [10.1] *
Asthma	22.9 [5.2] ***	25.6 [6.2] ***	1.2 [6.9] ns
Migraine	16.3 [5.7] **	29.3 [6.3] ***	25.6 [14.8] ns
Digestive system	11.6 [8.5] ns	44.6 [9.0] ***	7.7 [12.8] ns
Accidental injury	17.3 [10.2] ns	20.6 [10.9] ns	-1.3 [11.0] ns

* p<.05, ** p<.01, *** p<.001; ns: not significant; † Based on multiple regression of number of work-loss days on the comorbid physical and mental disorders, controlling for sex, age, and educational attainment. EID; unstandardized linear regression coefficients; [s.e.] = standard error of the mean.

Table 4.5 presents the contribution made by purely physical, purely mental and comorbid conditions to 12-month work-loss days. For example, a sinus infection as a physical disorder, in the absence of any mental disorder (purely physical) vs. any mental disorder in the absence of a sinus infection (purely mental) vs.

both a sinus infection and any mental disorder (comorbid condition). The EIDs for this in Table 4.5 show that both purely mental and purely physical disorders were associated with work-loss days. Mental disorders lead to significantly more work-loss days than a sinus infection, hypertension, asthma, or migraine. Mental disorders were comparable to rheumatism, diseases of the digestive system, and accidental injury. Mental disorders, however, led to significantly fewer work-loss days than chronic back trouble. PM-comorbidity is associated with more work-loss days than pure disorders. This is in part due to the fact that people with a comorbid disorder have at least two disorders. After controlling for this (CO-(PM+PP)), the effect of PM-comorbidity is additive for a sinus infection, rheumatism, asthma, migraine, diseases of the digestive system and accidental injury. In the case of chronic back trouble and hypertension, the effect of PM-comorbidity is synergistic: i.e. the two disorders together are associated with more work loss than the sum of work-loss associated with each disorder separately.

Table 4.5. Excess impairment days associated with pure and comorbid physical and mental disorders†

	EID [s.e] †							
	Sinus infection	Back trouble	Rheumatism	Hypertension	Asthma	Migraine	Digestive system	Accidental injury
I. Associations involving pure and comorbid conditions#								
Pure physical (PP)	4.3 [1.7]**	21.1 [1.7]***	16.8 [1.8]***	5.6 [1.8]**	5.4 [2.2]*	7.1 [2.4]**	14.1 [2.7]***	19.1 [2.6]***
Physical-mental comorbidities (CO)	17.8 [2.5]***	44.3 [2.6]***	32.7 [2.8]***	28.3 [2.9]***	18.6 [3.2]***	27.6 [3.2]***	33.3 [3.7]***	27.5 [4.3]***
Pure mental disorders (PM)	14.9 [1.1] ***	12.9 [1.0]***	14.1 [1.0]***	13.9 [1.0]***	14.9 [1.0]***	14.2 [1.0]***	14.2 [1.0]***	15.0 [1.0]***
II. Comparison of associations±								
PM-PP	10.6 [1.8] ***	-8.2 [1.9]***	-2.7 [1.9] ns	8.3 [2.0]***	9.5 [2.3]***	7.1 [2.5]**	0.1 [2.8] ns	-4.1 [2.7] ns
CO - (PM+PP)	-1.4 [3.1] ns	10.4 [3.2]***	1.7 [3.3] ns	8.9 [3.5]*	-1.7 [3.9] ns	6.3 [4.1] ns	5.0 [4.7] ns	-6.6 [5.1] ns

* p<.05, ** p<.01, *** p<.001; ns: not significant; † Based on multiple regression of number of work-loss days on the pure and comorbid physical and mental disorders, controlling for sex, age, and educational attainment. EID; unstandardized linear regression coefficients; [s.e.] = standard error of the mean; # Pure physical disorder = positive on the physical disorder stated in the column without any DSM-III-R mental disorder; pure mental = any DSM-III-R mental disorder without the physical disorder in the column; PM-comorbidity = both positive on the physical disorder stated in the column and any DSM-III-R mental disorder; ± PM-PP is the difference between the excess impairment days associated with pure physical disorders and pure mental disorders, CO - (PM+PP) is the difference between excess impairment days associated with comorbid physical and mental disorders and the sum of excess impairment days associated with pure physical and pure mental disorder.

4.6 Discussion

4.6.1 Key findings

The results suggest, within the context of the limitations that will be discussed, that: (1) PM-comorbidity is common, but not for all combinations of specific physical and mental disorders; (2) both physical and mental disorders are related to work-loss both separately and as comorbid disorders; (3) the increase in work-loss days due to PM-comorbidity is roughly the sum of work-loss days associated with these disorders, except for hypertension and chronic back trouble we found synergistic effects.

The first finding in this study confirms that in the general population, physical and mental disorders often co-exist (Penninx et al., 1996; Wells et al., 1988). PM-comorbidity is not simply the result of a few prevalent comorbidities. Of the 24 comorbidity pairs, the OR's of 21 pairs (87.5%) were greater than 1.0, and 17 (70.8%) were significantly greater than 1.0. None of the ORs less than 1.0 were significant. Due to the cross-sectional nature of this study, the direction of causality cannot be indicated.

The second finding is consistent with the existing literature regarding work loss in relation to physical and mental disorders. Kessler et al. (Kessler and Frank, 1997) found that mental disorders were associated with a substantial number of work-loss days and also reduced quality and quantity of work. In addition, physical conditions have also been found to be associated with substantial work impairment (Kessler et al., 2001; Verbrugge and Patrick, 1995; Verbrugge and Patrick, 1995).

Mental disorders lead to as many work-loss days as physical disorders and in some cases more. This finding was reported by Kessler et al. (Kessler et al., 2001), who found no differences in the mean impairment days among those patients with physical disorders and those with mental disorders. Dewa et al. (Dewa and Lin, 2000) found that among working individuals, mental disorders affect productivity more subtly than physical disorders. Others, however, found that depressed patients have substantial and long-lasting decrements in multiple domains of functioning, but reduced well-being that equals or exceeds those of patients with chronic medical illnesses (Hays et al., 1995; Ormel et al., 1998). The third finding was consistent with literature found on the subject of elderly and medical outpatients (Ormel et al., 1998; Wells et al., 1989b) in which an additive effect was found when depression was comorbid with one of the medical disorders. In this study we found that other mental disorders also show an additive effect on functioning in the workplace.

Chronic back pain does not follow the general pattern in two aspects. First, the purely physical disorder causes more EID than the purely mental disorder in contrast to all other physical disorders. Second, the comorbid effect is synergistic instead of additive, which we also found for hypertension. A possible explanation for these findings might be the following: avoiding the source of pain is a common strategy among people with chronic pain. One source of pain is work: heavy labour or long periods of sitting or standing. These are great risk factors for back problems. This supports the finding that back problems lead to more work loss than mental problems. Emotional stress may increase pain sensation, and in addition cause a motivational deficit that keeps people at home longer than a back problem or mental disorder without comorbidity. An explanation of the synergistic effect of hypertension is that there are low prevalent, unmeasured comorbid physical disorders such as heart failure that cause additional work loss. A more detailed examination of the synergistic effect is needed, but this is beyond the scope of our data.

4.6.2 Limitations

Errors in respondent retrospective self-reports about work loss could lead to a bias in estimates. This is an issue of special concern for mental disorders, because there is evidence that some types of mental disorders lead to distorted and pessimistic perceptions about personal self-worth (Coyne and Gotlib, 1983) that may partly explain the finding that the reported work-loss days due to mental disorders are higher than those for most physical disorders. The problem of recall can influence the measurement of work-loss days. A second limitation concerning work-loss days is the nature of the questions we asked. For example: 'How many days in the past twelve months were you unable to work due to mental health problems or substance use disorders?' These days were added to the number in the second question: 'How many days in the past twelve months were you unable to work due to physical health problems?' In the case of PM-comorbidity, it is not clear whether respondents were able to attribute the correct number of work-loss days to each disorder. We did find, however, that only 16 (0.2%) of the total sample reported more work-loss days than there are days in a year, after adding the mental to the physical work-loss days. Furthermore, the main finding in this article, that PM-comorbidity has, in general, an additive effect on work-loss days, is not likely to be altered by assuming a slight overestimation of work-loss days especially in the comorbid group. Finally, our results are consistent with the National Comorbidity Study (Kessler et al., 2003b) which also found largely additive effects of PM-comorbidity and some synergistic effects. The use of a more objective and refined measurement of work impairment would be a major advancement in reporting the work studied in this

article. An example of such a method is the World Health Organization Health and Work Performance Questionnaire (WHO-HPQ) which assesses full and partial work days missed in the previous 30 days (Kessler et al., 2003a). This questionnaire has been recently developed and was not available in 1996.

Third, the use of respondent self-reports to classify physical conditions could introduce error due to recall bias, misunderstanding of the true nature of the disorder and unwillingness to report stigmatizing conditions. However, a comparison of the prevalence of separate physical disorders in the present sample with data from ongoing health surveys by Statistics Netherlands (n=16,293) indicates good concordance (Central Bureau of Statistics, 1992). Furthermore, we have limited our definition of physical conditions to active conditions, i.e. conditions for which a physician had been consulted and/or medication had been taken on a regular basis during the preceding 12 months.

A final limitation is that there is no attempt to account for multiple comorbidities. The current analyses are already complex and any attempt to account for multiple comorbidities would probably lead to incomprehensible results and is beyond the scope of this article.

4.6.3 Conclusion

If patients present themselves to a medical health professional with a physical disorder, it is quite likely that a mental disorder is also present. If there are comorbidities, the mental disorder is, in general, associated with more work-loss than the physical disorder. The treatment of the physical disorder alone might not lead to a full return of productivity. This outcome is of interest to policymakers because of societal costs associated with a loss of productivity and an increased use of health services.

The present study is a first step towards a better understanding of the magnitude and effect of PM-comorbidity. Further research is needed to determine the underlying mechanisms causing the occurrence of PM-comorbidity and to determine the extent to which the detection and treatment of comorbid mental disorders associated with physical disorders could reduce the number of working days lost.